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Parent's Education , School-Age Children, and Household Location in American Cities

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Abstract. The revealed residential choice of city versus suburbs within large metropolitan areas is examined with particular focus on families with children, especially those with college-educated parents. Probit and bivariate probit estimates are presented for 15 large metropolitan areas in the United States, and for boroughs within New York City. Data are drawn from the Census Bureau's American Community Survey. It is shown that overall more affluent and educated families with school-age children are less likely to live in many large central cities including Boston, Chicago, New York City, and Philadelphia with a few important exceptions including Charlotte, Seattle, and the borough of Manhattan. We contrast our results with estimates for married and never married respondents without school-age children.

1. Introduction

The population of many large cities in the United States including Chicago, Detroit, New York City, Philadelphia, San Francisco, and Washington, D.C. started to decline in the 1950s. More recently, at least some of these cities have experienced a population turnaround. For example, New York City's population has increased by over one million since 1990 after declining by about one million between 1950 and 1980. Over the past decade, 9 of the 10 largest cities in the United States gained population (and 17 of the 20 largest cities).

Most studies attribute the population turnaround to a shifting residential attractiveness of the city. Prominent urban researchers, such as Glaeser (2011), have described the return to central cities in the United States, along with the particular features of urban areas that have attracted households back. These include such things as new housing in city centers, amenities like specialized restaurants and cultural activities, and broad demographic trends toward young college-educated singles who have urban residential preferences (see Brueckner and Rosenthal, 2009; Glaeser, 2011; Glaeser, Kolko, and Saiz, 2001).

In a recent study, Ehrenhalt (2012) calls the return to cities the "great inversion" that reverses trends that were present in cities since the mid-twentieth century. He hypothesizes that some American metropolitan areas are beginning to resemble 19th century European cities where the more affluent lived in city centers and households of more modest means lived in the suburbs. Some of the reasons that he gives for the heightened attractiveness of many central cities as a place to live is the decline of manufacturing in cities making them more livable, lower crime rates, growth in the single, never-married population, lower fertility, and growth in relatively affluent and educated seniors.

Despite the focus on amenities as the impetus to urban residential turnaround, other studies have documented the continued and revived strength of urban cores in fostering those jobs and businesses that are characterized by intense information exchange and creativity, thereby attracting college-educated residents to nearby neighborhoods (Berry, Bodini, and Weissbourd, 2005; Storper and Scott, 2009; Sander and Testa, 2013). In either case, not only is income important to city household location, but education and human capital as well.

Previous studies have correctly observed that the basis of the population turnaround has centered on college-educated singles and highly educated older adults (Brueckner et al., 1999; Florida, 2008; Glaeser and Kahn, 2001; Sander, 2005; Sander and Testa, 2009; Testa and Sander, 2010). However, it is less clear how central cities (relative to suburbs) have fared in attracting and keeping families with children. If one goes back in time, studies indicated that suburbs provided families with cheaper land and housing and fewer inner-city type problems including crime and poor quality schooling (Alonso, 1964; Mills, 1967; Muth, 1969; Wheaton, 1977).

Today, as households once again consider the central city in increasing numbers, the city-suburb choice of households with children merits further consideration. To be sure, not all urban households with children have sufficient income to allow broad choices among city and suburban communities. However, those households that have high education attainment and high income *are* able and *do* tend to choose communities based on criteria such as the quality of local schools, safety, and the education level of residents. That is, such households demand

a safe environment and good schools, which has generally made many suburban areas more attractive to such households (Albouy and Lue, 2011; Cullen and Levitt, 1999).

Nonetheless, many cities have arguably become more attractive to family households than they used to be for the same reasons that they have become attractive to singles. Moreover, some amenities and conditions may be especially improved for households with children as crime rates have been generally falling over time (Kneebone and Rafael, 2011). Similarly, in some places, recent improvements in public school quality and offerings have increased their attractiveness. For example, Hoxby and Muraka (2009) show that charter school initiatives in New York City have had positive effects on achievement. Angrist, Pathak, and Walters (2011) show that charter schools in general have boosted student urban achievement. Luppescu, et al. (2011) show that school reform in Chicago has increased achievement and high school graduation rates. Results from the National Assessment of Education Progress indicate that the quality of public education has improved in 11 big-city school districts (Casserly, et al., 2011). Further, to the extent that the quality of public schooling is problematic in central cities, families can opt out of the public school system and send their children to private schools. This is especially the case for more affluent families (see Cohen-Zada and Sander, 2008). Thus, it could be the case that central cities are becoming increasingly attractive to high human capital families.

If so, city policy leaders may find it helpful to recognize and understand the residential choices made by households with children. If cities are going to attract high human capital families, they will need to provide the amenities and services that are important to families with children. Otherwise, to preclude or repel such high education workers from living in

central cities could impose real costs in attracting jobs and in building a tax base to provide public services. For large metropolitan areas at least, un-necessarily long commutes by households with children from suburbs to central city work locations would tend to raise wage offers by these workers, thus having a negative effect on employment and investment.

In this paper, we further explore the relationship between higher education, income, and the location of families with school-age children within a city-suburban area context for 15 large metropolitan areas in the United States. We contrast our results with estimates for married respondents without school-age children and for never-married respondents without school-age children. We are thus able to show how marital status and children affect the attractiveness of specific cities to more educated and affluent consumers. We also include in our study a brief examination of the location of families within New York City (Manhattan versus the rest of New York City). We focus on Manhattan partly because data are available to separate out trends for the boroughs of New York City because of its large size. This cannot be done for other cities in the United States. Further, Manhattan has about 1.6 million people; it would be the fifth largest city in the United States if it were a city on its own.

Our study thus contributes empirical evidence on the determinants of household location for 15 metropolitan areas in the United States highlighting the effect of high levels of educational attainment and children. Key findings include mostly negative higher education and income effects on living in a central city for families with school-age children for the largest cities within metropolitan areas in our sample including Chicago, New York City, and Philadelphia although Manhattan is found to be attractive to more affluent and highly educated families. Moreover, more affluent and educated families are more likely to live in a few of the smaller cities in our

sample including Charlotte and Seattle. This contrasts with more positive higher education effects on living in cities for married and never-married respondents without school-age children.

2. Data

The data set that is used in this study is the 2009 American Community Survey (ACS). The ACS is a cross-sectional national survey of about 3 million households that has been undertaken annually since 2005 by the United States Bureau of the Census. Households in the survey are identified by the PUMA (public use microdata area) where they live and the POWPUMA (place of work public use microdata area) where they work. PUMAs are sample areas that have a population of at least 100,000. We select 15 large metropolitan areas including Baltimore, Boston, Charlotte, Chicago, Cincinnati, Detroit, Milwaukee, Minneapolis-St. Paul, New York City, Philadelphia, Pittsburgh, St. Louis, San Francisco, Seattle, and Washington, D.C. These particular metropolitan areas are selected for reasons of data compatibility; that is, individuals can be assigned as living and working within city versus suburban municipal boundaries. As a small caveat, in these 15 cases, the POWPUMA represents working in the primary city within the MSA. To the contrary, in other (non-usable) cases for large cities such as Los Angeles, Houston and San Diego, the POWPUMA cuts across suburban and central city boundaries. For these and for many other MSAs it is not possible to identify individuals as working in a central city versus suburb. Our sample includes 12 of the 30 largest cities in the United States. In addition, three smaller cities are included that are located in one of the 30 largest metropolitan areas in the United States.

Descriptive information on the data set is presented in Table 1. The least populous MSA in our sample is Milwaukee while the largest is New York. The majority of the populations in all of our MSAs live in suburbs rather than the primary central city. The share of MSA population living in primary cities ranges from a low of about 1 in 10 in Washington, D.C. to over 40 percent in the New York City metropolitan area.

Factors that have been shown to discourage more affluent and educated families from living in cities include crime and low quality public schools. For this reason, we also present data on violent crime rates and high school graduation rates that are comparable for most cities in our sample. The high school graduation rate is not necessarily a good indicator of the quality of schooling in a city, but it suggests how such public school systems might be perceived.

Cities that have particularly high violent crime rates include Detroit and St. Louis followed by Baltimore, Washington, D.C., and Chicago. New York City has the lowest violent crime rate (declining by about two-thirds over the past two decades) in our sample followed by Seattle, Charlotte, and San Francisco. Most of the cities in our sample have relatively low (public) high school graduation rates. For the United States, the four-year high school graduation rate is about 75%. That is, about 3 out of 4 freshmen in 2007-08 graduate in 4 years. The National Center for Educational Statistics (NCES) publishes education data for the 100 largest public school districts. For these districts, the rate is 65%. In our sample, all of our cities that are in the NCES sample except San Francisco are below the national average. (Table 1).

A key variable in our study is whether adults have at least a bachelor's degree. For this reason, we array data by city and suburb on the percentage of adults twenty-five and over who have at least a bachelor's degree for the MSAs in our sample. We call all areas that are within

the MSA boundaries and outside the primary central city "suburb" throughout our study. Overall, educational attainment levels are higher in central cities than in suburban areas in about half of our metropolitan areas. In some cases, the differences are relatively large. For example, the percentage with a college degree is fifteen percentage points higher in the city of Seattle than in suburbs of Seattle. In contrast, in the case of Detroit the percentage with a college degree is eighteen percentage points higher in suburban areas than in the city of Detroit. Levels of educational attainment are important because high human capital families want to live in high human capital communities (Table 1).

In Table 2, we array more descriptive information on the metropolitan areas in our study. We provide information of key aspects of where households and families live in MSAs by their levels of education and the location of where they work, variables that will be featured in our analysis below. In about half of the metropolitan areas in our study, the share of the MSA college graduate population that lives in the primary central city is about the same as the share of the overall population. In a few cases (Baltimore, Detroit, and Milwaukee), college graduates are less prominent in the central city of a metropolitan area and in a few cases college graduates are more concentrated in central cities (Charlotte, Seattle, and San Francisco). In most cases, parents with school-age children (regardless of their educational attainment) are less prominent in central cities. However, in Detroit, New York City, and St. Louis this is not the case. Further, in most cases college-educated parents with school-age children are far less concentrated in central cities relative to all parents with school-age children with the exceptions of Charlotte, Pittsburgh, and Seattle.

On the face of it, the raw data also suggest that a key reason that parents live in central cities is the location of their work. A high percentage of parents who work in central cities also live there although college-educated parents have a lower propensity to live in cities. For example, 8 out of 10 parents who work in New York City also live there. This falls to about 7 out of 10 for college-educated parents with school-age children (Table 2).

At the other end of the spectrum, adults with less than a high school education (called "high school dropout") are more likely to live in central cities in a majority of cases relative to college graduates. However, in 3 cases (Charlotte, San Francisco, and Seattle), high school dropouts are less concentrated than college graduates in central cities while in a few MSAs (Cincinnati, Pittsburgh, and Washington, D.C.) the proportions are about the same. One of the differences relative to college-educated parents is that in most cases parents with less than a high school education are about as likely to live in central cities as adults with less than a high school education in general. Once again, there are a couple of exceptions. Parents with less than a high school education tend to be more concentrated than other "dropout" parents in Detroit and less concentrated in San Francisco and Seattle (Table 2).

The descriptive information thus suggests that college educated parents with school-age children are usually less likely to live in central cities relative to other adults and less educated parents with school-age children. The data also indicates that parents who work in central cities are more likely to live in central cities relative to other parents. The estimates below will further explore to what extent these relationships hold when other factors are taken into account.

3. Models

In drawing on the ACS data, we undertake probit estimates of residential location for respondents 25 and older with school-age children (primary central city in the MSA versus suburbs and other parts of the MSA) for each of the 15 large metropolitan statistical areas. Probit is used because our dependent variable takes on a value of either zero or one. Logit would also be an appropriate methodology and should result in similar estimates. However, Ordinary Least Squares (OLS) would be inappropriate because it would lead to biased and inconsistent estimates. The other right-hand side variables that are used to estimate household location include educational attainment (relative to high school graduate), household income, age and age squared, black, Hispanic, Asian, married, divorced, widow, both husband and wife work, and respondent works in the primary central city.

We focus on the effect of higher levels of educational attainment and control for respondents with a bachelor's degree, a master's degree, a professional degree like a law degree or a medical degree, or a Ph.D. rather than simply adjusting for respondents with at least an undergraduate degree. We do this to show how different levels of college attainment affect household location. One might expect that someone with, for example, a professional degree might differ in their propensity to live in a city than someone with a bachelor's degree. Further, about 1 out of 3 adults in the United States in 2010 with at least a bachelor's degree have a graduate degree as well (United States Census Bureau, 2012).

Educational attainment is taken into account because it could affect preferences for where one lives. It could also be associated indirectly with many factors like age at marriage and fertility that affect the incentive to live in cities. Further, it is important to separate out the effect of

educational attainment from the effect of income, a variable that has received considerable attention in related research on household location (e.g., Margo, 1992). Previous studies indicate that education and income do not necessarily operate in the same direction in their effects on household location (Sander, 2005).

The adjustment for marital status is made because previous studies suggest that married couples have tended to place a higher value on the amenities of suburban locations, especially cheaper housing, good schools and lower crime. It is less clear how divorced, separated, and widowed individuals value suburban locations. Age (and age squared) are taken into account because they might affect the value of city living (e.g., the value of nightlife for young adults). Adjustments are made for racial and ethnic background because they also affect the propensity to live in cities for many reasons including preferences to live in ethnic enclaves (see Bayer, McMillan, and Rueben, 2004; Bayer, Ferreira, and McMillan, 2007). An adjustment is made for whether husbands and wives both work although the effect of this variable is not clear. Finally, an adjustment is made for whether the respondent works in a city. Although the location of work is endogenous with household location, many studies indicate that working in a city increases the likelihood of living in a city.

We also undertake probit estimates for households without school-age children. We do this separately with estimates for currently married and never-married respondents. We estimate these variables to show how higher education and income effects vary by marital status and the presence of school-age children. The other variables in these additional estimates are the same as above.

We also estimate household location within the largest metropolitan areas in our sample, New York City. In the case of New York City, each borough of the city has a separate place of work PUMA associated with it, an important determinant of where households live. Thus, it is possible to separate out household locations in specific boroughs while adjusting for working in that borough. It is not possible to do this for other cities. We undertake multinomial logit estimates for New York City separating out three locations: Manhattan, other New York City, and suburbs of New York City. Manhattan is of particular interest because of an observed growth of families with children living there over the past decade. It would also be a large city on its own if it was independent of the rest of New York City with a population of about 1.6 million. Further, NYC is the only city (to our knowledge) in the ACS data where it is possible to separate out the location of work for locations within a city.

An important issue in estimating household location is that the location of work is endogenous with the location of households, as noted above. That is, probit estimates of household location and the location of work could have correlated disturbances. For this reason, we also estimate bivariate probit models of residential location, treating the location of work as endogenous. This is a two-stage process where we estimate household location as a function of the variables that have been listed above and we estimate the location of work as a function of the same variables excluding, of course, the location of work. While bivariate probit models can be estimated without exclusion restrictions, the quality of such estimates is problematic (Altonji, Elder, and Taber, 2005). An additional variable is needed that affects the location of work and is independent of household location. The additional variable that we use for identification is industry of work. The logic behind our identification strategy is that

industries differ in their suburbanization propensities. For example, manufacturing tends to be more concentrated in suburban areas because of cheaper land and other reasons. Further, workers have invested in industry-specific human capital that affects where they work. Other research provides support for this identification strategy (Bajari and Kahn, 2005; Neal, 1995).

For the multinomial logit estimate for New York City, we also use a predicted value for working in New York City to estimate living in Manhattan, other New York City, or suburban areas of New York City. The predicted value is based upon the other variables in the estimate and industry of work for identification. Limdep is the software package that is used for all of the estimates in the paper.

4. Results

Probit estimates of living in the primary central city for the 15 large metropolitan areas in our sample are presented below (Table 3). The coefficients that are reported are the marginal effects of the probit coefficients evaluated at the mean values for the other right-hand side variables in the model.

The results indicate that having a bachelor's degree (BA) has a significant negative effect on living in a central city in 10 of the estimates. A bachelor's degree is only positively associated with living in a central city in two cases (Charlotte and Seattle). The effect of having a master's degree (MA) is very similar to the pattern in the results for having a bachelor's degree. MA is negative and significant in 9 cases and positive and significant in 2 cases (Minneapolis-St. Paul and Seattle). For respondents with a professional degree like a law degree or a medical degree, cities are less unattractive. A professional degree only has a significant negative effect on living

in a central city in three cases (Boston, New York City, and Philadelphia) while the effect is positive and significant in 3 cases (Washington, D.C., Pittsburgh, and Seattle). Similarly, respondents with a Ph.D. are significantly less likely to live in cities in only 3 cases (Baltimore, Boston, and New York). However, the effect of income is negative and significant in 12 cases and positive and significant in only 2 cases (Charlotte and Seattle).

Some of the other significant results in the probit estimates are as follows. The least educated (LTHS) are more likely to live in cities. The effect of age tends to be u-shaped in many cities suggesting that cities are relatively attractive to young adults and relatively older adults. African-Americans, Hispanics, and, to a lesser extent, Asians are more concentrated in cities. Also, married, divorced, and widowed respondents are less likely to like in cities while if both husband and wife work, they are less likely to live in a city in several cases. Finally, working in a primary central city is positively associated with living in the city.

Probit estimates for married respondents without school-age children are presented in Table 4. For brevity, we only report the marginal effects of the higher education and income variables. In general, the results for the higher education effects are more positive than in the previous case where school-age children were present. For example, having either a professional degree or a Ph.D. has a significant positive effect on living in a central city in a majority of cases (and no significant negative effect in any case). A master's degree is positively associated with living in a city in 8 cases and only negatively associated with living in a central city in three cases while respondents with a bachelor's degree are more likely to live in a city in four cases and less like in three locations. However, the effect of income is only significant and positive in three cases while income has a significant negative effect in seven cases.

The effect of higher education on living in a central city is even more positive for never-married respondents without school-age children. Respondents with at least a bachelor's degree are significantly more likely to live in a central city in at least 9 cases (and as high as 12 cases for respondents with a professional degree). In only two cases (Detroit and Philadelphia) are respondents with a college degree less likely to live in a city. However, once again, the effect of income is negative in most cases (Table 5).

The bivariate probit estimates of living in a central city for families with school-age children are presented in Table 6. For brevity, we only present the marginal effects of the higher education, income, and "work city" coefficients. In general, a very similar pattern in the results is found for the higher education and income variables. The key difference in the estimates is that there are large differences in the effect of working in a central city in the bivariate probit results. Univariate probit models substantially overestimate the effect of working in a city on living in it. One primary reason for this is that some individuals work in a city because they choose to live there. For example, for the bivariate probit, the effect of working in the city of Boston on living there is about .1 rather than .2. In 5 cases, the effect of working in a city on living in the city is now either negative or zero.

Cities where the location of work tended to have the largest positive effect on household location were mostly the larger cities in our sample including Chicago, Philadelphia, San Francisco, and Seattle. Quite possibly, the personal transportation costs of cross-boundary commuting are naturally higher in large MSAs. One of the exceptions was New York City. This could be simply a result of a specific "boundary effect" where a large number of individuals commute a relatively short distance into New York City from New Jersey and elsewhere. For

the smallest cities in our sample (Pittsburgh and St. Louis) the effect of working in these cities on living in them is zero suggesting either that are not especially attractive places to live for city workers, while commuting costs from the suburbs are not formidable.

The multinomial logit estimates for living in Manhattan and "other New York City" relative to suburbs of New York City are presented in Table 7 Estimates are presented with an adjustment for place of work and with a predicted value for place of work. Both estimates indicate that higher education and income have positive effects on living in Manhattan and negative effects on living in other boroughs of New York City relative to other areas in the New York City MSA. If an adjustment is not made for place of work, the effect of higher education and income is more positive for living in Manhattan and less negative for living in other parts of the city not shown).

In Table 8, we summarize the key results from our probit estimates for respondents with school-age children and for respondents without school-age children. We show the number of significant coefficients in our estimates and their signs. For respondents with school-age children, the results indicate that respondents with either a bachelor's degree or a master's degree are more likely to live in suburban communities. Respondents with either a professional degree or a Ph.D. are about as likely to live in cities as they are to live in suburbs. Respondents without school-age children are more likely to live in cities and less likely to live in suburbs. This is especially the case for never-married respondents. For all respondents, the effect of income is negative in a majority of cases and is positive in only three cases at most.

5. Discussion/ Conclusions

To be sure, many highly educated households are now settling in cities, especially educated singles, which has helped to sustain population growth following decades of decline. However, for most of our samples MSAs, the "great inversion" of U.S. cities has not yet taken place. With respect to the general tendency of household income to rise with distance away from the city center, we find that the marginal effect of household income on living in the city remains modestly negative for most cities in our sample. Further, this result holds across major groups of household structure—those with children and those without. This persistent result may be a holdover or lasting effect of the older and small(er)-sized housing stock of central cities, coupled with a suburban housing stock that is well-suited to higher income households. Physical configuration of the stock of housing adjusts only slowly over time.

In most of our study MSAs, households having high educational attainment lead the way in living in central cities, but the presence of school-age children negates this effect. Overall, having either a bachelor's degree or a master's degree has a negative effect on families with school-age kids living in a city. However, there are a few exceptions where the effect is positive (Charlotte, Seattle, and Manhattan in most of the estimates). And having very high levels of educational attainment (a professional degree or a Ph.D.) is negatively associated with living in a city only in a few cases, suggesting that parents with very high levels of educational attainment tend to have a greater preference for living in cities relative to others.

How much of the seeming attractiveness of cities to very highly educated families with children relates to the quality of public schools in cities? Most cities have not achieved much traction in this regard, though efforts toward these ends are widespread. Urban school improvement initiatives range from a host of teacher pay-for-performance reforms, to "small

schools" reconfiguration, to charter school choice and high-achieving academies. In some instances where highly educated parents with children *have* chosen to live in the city, opting out of the public schools system in favor of private schools may be part of their choice rather than gains in public school quality. For example, data from the 2009 ACS for Manhattan indicates that 26% of 6-17 year olds who were enrolled in school attended private schools. For affluent areas within Manhattan, the percentage of school-age children who attend private schools is significantly higher—about one in two for families that live in the Upper East Side or Upper West Side. The percentage of non-Hispanic white school-age children who attend private schools in Manhattan is even higher (60%) while the percentage of African-American and Hispanic families who send their children to private schools in Manhattan is much lower (17% and 9%, respectively).

Declines in crime rates in many cities over the past two decades are one important factor that has seemingly made them more attractive to families. Also, improvements recreational/cultural amenities over the past decade have possibly made cities more attractive in general to those with greater educational attainment. Cities have concertedly pursued recreational and cultural redevelopment including waterfront festivals and shopping, museums, architectural preservation, theatre districts and much more.

Should some cities, then, pursue households with children as a focus of strategic development? To some extent, the reasons for good schools and safe neighborhoods are obviously over-arching goals that need not be couched within a narrow strategy. Social returns to education and safety are high; today's children are tomorrow's citizenry and workforce. But now that many households are choosing to live in the city during their pre-child bearing

years, the stakes in offering them a suitable environment for raising children are high. As the results of this paper suggest, parents with high educational attainment are already favorably disposed to live in cities. The marginal efforts that must be achieved to attract and retain them in cities may be reachable.

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Table 1

Population and Selected Characteristics of Central Cities and MSAs

	Population			College Attainment		Other Characteristics	
	Central City 2009	MSA 2009	Living in Central City	Percent of Residents Age 25+ Having College Degree		Violent Crime Rate/100,000 2009	Public Hi School Gr Rate 2007
	(- - - - - - - 000s - - - - - - -)		(percent)	Central City	Suburbs		(percen
more	637	2,690	24	26	37	1,513	57
on	645	4,588	14	45	42	992	69
lotte	704	1,745	40	39	28	723	66
ago	2,850	9,580	30	33	34	1,180**	64
innati	333	2,170	15	32	28	1,192	82*
oit	910	4,403	21	12	30	1,967	45
vaukee	605	1,559	39	22	36	1,089	62
neapolis	666	3,269	20	41	37	964	n.a.
York City	8,391	19,669	43	34	37	552	65
adelphia	1,547	5,968	26	23	35	1,239	56
burgh	311	2,354	13	33	27	989	64*
ouis	356	2,825	13	27	33	2,070	46*

Francisco	815	4,317	19	51	40	735	78
tle	616	3,407	18	56	41	640	67*
hington, D.C.	599	5,476	11	48	47	1,264	56

Sources: American Community Survey 2009. Education statistics taken from National Center for Education Statistics 2010 unless otherwise noted. Crime statistics taken from U.S. Department of Justice, Uniform Crime Report 2009 unless otherwise noted. Data on travel time is taken from Schrank, Lomax, and Elsele, 2011.

*Internet sources.

**May not be directly comparable.

Table 2

Percent of MSA persons aged 25 years and older living in central cities, 2009

	All Persons Age 25+	All College-Educated	All High School Dropout	Parents with School-Age Kids	College-Educated Parents with School-Age Kids	High School Dropout Parents with School-Age Kids	Parent Works in Central City	College-Educated Parent Works in Central City
Baltimore	17	14	30	17	6	27	37	15
Boston	19	20	31	13	8	29	32	20
Charlotte	31	38	29	28	33	31	47	48
Chicago	30	30	42	27	16	40	59	43
Cincinnati	13	16	15	9	7	17	26	21
Detroit	22	12	37	24	9	46	52	33
Milwaukee	25	19	46	27	11	51	44	24
Minneapolis	19	22	31	16	13	37	36	32
NYC	49	46	65	47	36	66	82	69
Philadelphia	33	24	54	30	13	55	68	44
Pittsburgh	12	14	13	8	8	15	23	18
Seattle	24	33	21	14	21	14	38	47
St. Louis	16	14	25	13	7	24	25	13
San Francisco	22	27	23	14	12	17	48	44
Washington, D.C.	14	16	16	8	5	12	18	13

Source: American Community Survey 2009.

Table 3

Probit Estimates of Living in Central City by MSA for Parents with School-Age Children, 2009

	Baltimore	Boston	Charlotte	Chicago	Cincinnati	Washington, D.C.	De
	−.06***	−.02**	.06***	−.07***	.03**	−.02***	−.0
	−.06***	−.03***	.03	−.06***	.01	.01	−.0
	−.04*	−.05***	.09	−.01	.14**	.07***	−.0
	−.07***	−.04***	.01	−.02	.02	.04*	.0
	−.05***	−.03***	−.03	−.04***	.02**	−.01***	−.0
	.05***	.04***	.06*	.02**	.06***	.01*	.0
	−.004***	−.001**	.002***	−.002***	−.001**	−.001***	−.0
	−.001	.006***	.01	−.004**	−.005***	.001	−.0
	.00002	.0001***	−.0001	.0001***	.0001***	.000004	.0
	−.01	−.02**	−.05***	−.05***	−.01**	−.01***	−.0
	.15***	.26***	.28***	.35***	.24***	.09***	.5
	−.04***	.12***	.18***	.23***	.09***	.02**	.3
	−.02	.08***	.18***	.16***	−.02	−.03***	.1
	−.07***	−.11***	.04	−.08***	−.02*	−.06***	−.0
	−.03***	−.04***	−.04	−.09***	−.01	−.03***	−.0
	−.01	−.07***	−.06	−.10***	−.04***	−.03***	−.0
k	−.02*	.01	−.12***	−.06***	−.01	−.03***	−.0
	.12***	.22***	.29***	.41***	.14***	.09***	.1
	4,473	5,839	3,410	15,379	4,309	8,179	5,400
ed	941.7***	1,143.8***	616.7***	4680.2***	648.5***	1,069.6***	3,114**
squared	.24	.26	.15	.26	.25	.23	.5

Table 3 Continued

	Milwaukee	Minneapolis	New York City	Philadelphia	Pittsburgh	St. Louis	San Francisco	
	−.05*	−.004	−.10***	−.11***	−.004	−.06***	−.04***	
	.02	.05**	−.09***	−.11***	.02	−.04***	−.06***	
	.01	.07	−.06***	−.06**	.11**	−.03	.02	
	−.02	.13*	−.04	.02	.32***	−.02	.01	
	−.00003	−.03**	−.05***	−.05***	.01	−.03***	−.02*	
	.11***	.04**	.17***	.07***	.07***	.03*	.02	
	−.014***	−.003***	−.006***	−.008***	−.001***	−.004***	−.0001	
	−.02***	−.003	−.02***	−.01***	.003	−.002	−.003	
	.0002***	.0001	.0002***	.00001***	−.00002	.00004*	.0001***	
	−.005	−.007	−.12***	−.03***	−.02***	−.02*	−.02**	
	.63***	.16***	.30***	.26***	.26***	.12***	−.03**	
	.05	.24***	.17***	.21***	.15**	.05	−.05**	
	.32***	.15***	.21***	.12***	.04	.06*	.04***	
	−.06**	−.12***	.004	−.11***	−.03**	−.05*	−.06***	
	−.05**	−.07***	−.07***	−.05***	−.02***	.002	−.06***	
	−.05	−.08***	−.04*	−.07***	−.02	−.03	−.06***	
	−.03	−.02	−.19***	−.06***	−.01	.02**	−.03***	
	.15***	.21***	.62***	.50***	.14***	.12**	.42***	
	1,866	4,469	26,905	6,102	3,997	5,365	6,712	4,6
	942***	581***	1,2136***	2,575***	528***	443***	1,144.6***	6
quared	.43	.15	.33	.35	.23	.11	.21	

*Significant at the 10% level.
**Significant at the 5% level.
***Significant at the 1% level.
Note: Coefficients indicate marginal effects at sample means .

Table 4

Probit Estimates of Living in Central City of MSAs for Married Respondents 25+ *without* School-Age Children

	BA	MA	Prof	PhD	Income (0000s)
Baltimore	−.02*	.01	.07***	.07***	−.0003
Boston	−.004	.02	.03	.02	−.0004
Charlotte	.07***	.08***	.21***	.09	.005***
Chicago	.01	.04***	.02	.06**	−.0001
Cincinnati	.03***	.06***	.11***	.21***	.001
Washington, D.C.	.03***	.07***	.14***	.11***	.001***
Detroit	−.01	−.02***	.03	.08**	−.004***
Milwaukee	.004	.07**	.16**	−.04	−.007***
Minneapolis	.01	.05***	.15***	.11**	−.001**
New York City	−.07***	−.03***	.02	.02	−.003***
Philadelphia	−.05***	−.02*	−.02	.02	−.006***
Pittsburgh	.002	.01	.03	.10***	−.001***
St. Louis	−.01	.01	.12***	.12***	−.003***
San Francisco	.02	.04***	.04*	.05**	.0004
Seattle	.08***	.15***	.17***	.20***	.001*

Notes:
*Significant at the 10% level.
**Significant at the 5% level.
***Significant at the 1% level.
Coefficients indicate marginal effects. Estimates also include adjustments for age, age squared, marital status (married, divorced, widowed), both husband and wife work, gender, black, Hispanic, Asian, less than high school, some college, and working in central city.

Table 5

Probit Estimates of Living in Central City of MSAs for Never Married Respondents 25+ *without* School-Age Children

	BA	MA	Prof	PhD	Income (0000s)

Baltimore	−.01	.06	.19***	.12	−.006***
Boston	.09***	.10***	.21***	.11*	−.001
Charlotte	.15***	.04	.005	.41***	−.005
Chicago	.13***	.17***	.21***	.26***	−.003***
Cincinnati	.24***	.21***	.30***	−.06	−.004*
Washington, D.C.	.05**	.11**	.23***	.24***	−.001
Detroit	−.11***	−.14***	.10	−.09	−.010***
Milwaukee	.14***	.23***	.37*	.43***	−.014***
Minneapolis	.13***	.21***	.05	.06	−.006***
New York City	.06***	.08***	.11***	.18***	−.008***
Philadelphia	−.07***	−.03	.16***	.13*	−.013***
Pittsburgh	.03	.04	.12*	.03	−.009***
St. Louis	.04	.01	.36***	.35***	−.004*
San Francisco	.09***	.11***	.17***	.08	.002
Seattle	.27***	.29***	.39***	.43***	−.001

Notes:
*Significant at the 10% level.
**Significant at the 5% level.
***Significant at the 1% level.
Coefficients indicate marginal effects. Estimates also include adjustments for age, age squared, marital status (married, divorced, widowed), both husband and wife work, gender, black, Hispanic, Asian, less than high school, some college, and working in central city.

Table 6

Bivariate Probit Estimates of Living in Central Cities by MSA, 2009

	BA	MA	Prof	PhD	Income (0000s)	Work City
Baltimore	−.09**	−.10**	−.06	−.16	−.004***	−.11**
Boston	−.03	−.04*	−.08*	−.04	−.002***	.11***
Charlotte	.08**	.05	.13**	−.001	.003***	.01
Chicago	−.12***	−.10***	−.02	−.04	−.003***	.27****
Cincinnati	.03	.02	.10	.02	−.001	.10***
DC	−.03*	.01	.07**	.04*	−.001*	.06***
Detroit	−.07	−.18*	−.02	.05	−.008*	.12***
Milwaukee	−.07	.01	−.04	−.04	−.022***	−.51***
Minneapolis	.01	.01	.01	.02	−.0005	.06*
New York City	−.07***	−.07***	−.03**	−.02	−.003***	.14****
Philadelphia	−.18***	−.21***	−.11**	.03	−.013****	.23*
Pittsburgh	−.02	.04	.18**	.33***	−.004**	.03
St. Louis	−.01	−.01	−.001	.001	−.001	.05
San Francisco	−.06**	−.11***	.02	.01	−.0003	.28****
Seattle	.06**	.09**	.30*	.001	.002*	.20***

Notes:
*Significant at the 10% level.
**Significant at the 5% level.
***Significant at the 1% level.
Coefficients indicate marginal effects. Estimates also include adjustments for age, age squared, marital status, both husband and wife work, gender, black, Hispanic, Asian, less than high school, and some college.

Table 7

Multinomial Logit Estimates of Household Location in the New York City MSA

	Manhattan	Other New York City	Manhattan	Other New York City
BA	.02***	−.11***	.03***	−.08***
MA	.04***	−.14***	.05***	−.07***
Prof	.05***	−.13***	.07***	−.06***
PhD	.07***	−.13***	.08***	−.09***
IncomexD-5	.01***	−.10***	.02***	−.09***
Adjustment for Place of Work	Yes	Yes	No	No
Adjustment for Predicted Place of Work	No	No	Yes	Yes

Notes:
*Significant at the 1% level.
Coefficients indicate marginal effects.
Estimates also include adjustments for age, age squared, marital status (married, divorced, widowed), both husband and wife worked, gender, black, Hispanic, Asian, less than high school, some college, and, place of work.

Table 8

Summary: Number of Statistically Significant Coefficients of "Living in City," Probit Estimates

	Kids		**No Kids**			
			Never Married		Married	
	Positive	Negative	Positive	Negative	Positive	Negative
BA	3	10	10	2	4	3
MA	2	8	9	1	8	3
Prof	4	4	12	0	9	0
PhD	3	2	9	0	10	0
INC	2	12	0	10	3	7

Note: Coefficients are at least significant at the 10% level.